

REMARKS

Applicant respectfully requests reconsideration and allowance of subject application. Claims 1-4 and 9-18 are pending.

Applicant thanks the Examiner for the detailed analysis presented in the current Office Action.

Current Office Action Comments

The Office is respectfully requested to consider and respond to the following comments. Claims 1-4 stand rejected in view of Moulton et al. The current Office Action, as well as previous Office Actions, argues that "collecting" and "digitally signing" acts are disclosed in column 10, lines 50-65 and column 11, lines 1-10, respectively. (Current Office Action, page 3). Nowhere in this excerpt is there any discussion of digitally signing, in batch, changes made to certain files stored in a distributed file system. This subject matter is set forth in claim 1. The absence of discussion or teaching of this act in Moulton et al. is further admitted by the Office in subsequent sections of the Office Action. On page 5, the Office states "[t]he combination of Moulton and Burns do not teach digitally signing the hash value of the group of hashes." On page 8, the Office notes that "Moulton is silent regarding a digital signature covering at least part of the representations to indicate that the modifications were made by a user with the signature."

Until this clear discrepancy is rectified, the Applicant respectfully submits that the current rejection in view of Moulton et al. is improper and should be withdrawn. If the Office wishes to present a new rejection of claims 1-4, the Office is reminded that an Office Action including such a new rejection must be

1 non-final. To do otherwise would eliminate the Applicant's right to respond to  
2 and possibly amend claims when faced with a proper art grounds rejection(s).

3 The Office maintains that the documents relied upon to reject the claims  
4 under Section 103(a) were traversed individually, not collectively, in the  
5 Applicant's Response of August 4, 2005. Applicant disputes this contention for  
6 the following reasons.

7 The Office asserts that certain limitations of the rejected claims are taught  
8 by particular ones of the patents relied upon. The Applicant distinguishes the  
9 claims of the present Application over the art relied upon by the Office in this and  
10 previous Responses. In doing so, the Applicant traverses the Office's contentions  
11 related to that which is taught by the relied upon patents. Part of the traversal  
12 process requires the Applicant to discuss the patents individually. However, a  
13 conclusion that an obviousness rejection is improper is offered only after  
14 discussing that the combination of relied upon patents does not teach at least one  
15 limitation of a rejected claim. Therefore, the Office's contention that the  
16 "references" were attached individually is inaccurate.

17 The Office has cited an additional reference in the current Office Action.  
18 The reference is titled "Digital Signature Standard (DSS)" (hereinafter "DSS").  
19 The Office maintains that the DSS article provides evidence that "any digital  
20 signature must necessarily represent the user who owns the private key used in  
21 generating said digital signature." This assertion by the Office, whether it is true  
22 or not, still does not solve why the combination of Moulton et al. in view of Chan  
23 et al. is deficient. The Office states the combination teaches "a digital signature  
24 covering at least part of the representations to indicate that the *modifications were*  
25 *made by a user* with the signature," as set forth in claim 17. (Emphasis added.)

1 There is no teaching in the combination of Moulton et al. in view of Chan et al.  
2 that discloses the use of a digital signature that indicates modifications were made  
3 by a user with the signature.

4 For example, conventional the private/public key technology, a first user  
5 may receive a file from a second user. The first user may modify the file, encrypt  
6 the file with their private key and send it to a third user. Even though the third  
7 user may be able to access the file using a proper public key, the decryption will  
8 not reveal that the second user *modified* the file. According to the DSS article, the  
9 private/public key technology only enables the third user to ascertain the *identity*  
10 of the second user. This is not the same as being able to ascertain "that the  
11 *modifications were made by a user with the signature,*" as set forth in claim 17.  
12 (Emphasis added.) Therefore, the arguments traversing the Moulton et al. in view  
13 of Chan et al. rejection, given below, are maintained and are believed to be  
14 persuasive.

15  
16 **Claim Rejection Under 35 U.S.C. § 102**

17 Claims 1-4 now stand rejected under 35 U.S.C. § 102(e) as being  
18 anticipated by U.S. Patent No. 6,704,730 to Moulton et al. (hereinafter,  
19 "*Moulton*"). Applicant respectfully traverses the rejection.

20 **Claim 1** is reproduced below:

21  
22 1. A method comprising:

23 storing files across multiple computers in a distributed file

24 system;

25 making changes to certain files;

1 collecting the changes that are made to the certain files stored  
2 in the distributed file system; and  
3 digitally signing the changes in batch.  
4

5 *Moulton* fails to disclose the recited method of claim 1. Namely, *Moulton*  
6 fails to disclose “collecting the changes that are made to the certain files stored in  
7 the distributed file system” and “digitally signing the changes in batch.”

8 The Office argues that the “collecting” and “digitally signing” acts are  
9 disclosed in column 10, lines 50-65 and column 11, lines 1-10, respectively.  
10 (Office Action; page 3). Applicant disagrees.

11 The excerpt from column 10 merely describes a process 500 (Fig. 6) for  
12 comparing a file hash or directory list hash values to existing directory list hash  
13 values and the addition of new file or directory list hash values to the database  
14 directory list. (*Moulton*, col. 10, lines 49-53). This process 500 includes  
15 accumulating a list of file names, file meta-data and file hashes in a directory (step  
16 502), hashing the contents of the directory list (step 504), and checking whether  
17 the hash value matches a value already in the database (step 506). Nowhere in  
18 process 500 (Fig. 6) is there any discussion of “collecting the changes that are  
19 made to the certain files stored in the distributed file system.”

20 The excerpt from column 11 describes a comparison 600 (Fig. 7) of pieces  
21 of a computer file with their corresponding hash values. Nowhere in this excerpt  
22 is there any discussion of digitally signing, in batch, changes made to certain files  
23 stored in a distributed file system, as required by claim 1.

24 The absence of discussion or teaching of this act in *Moulton* is further  
25 admitted by the Office in subsequent sections of the Office Action. On page 5, the

Office states "[t]he combination of Moulton and Burns do not teach digitally signing the hash value of the group of hashes." On page 7, the Office notes that "Moulton is silent regarding a digital signature covering at least part of the representations to indicate that the modifications were made by a user with the signature."

For the reasons given above, claim 1 is allowable over *Moulton*. Applicant respectfully requests that the § 102 rejection be withdrawn.

Claims 2-4 are allowable by virtue of their dependency on claim 1.

**Claim Rejections Under 35 U.S.C. § 103**

Claims 9-16 now stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Moulton* in view of Burns et al., U.S. Patent No. 6,405,315 B1, (hereinafter "*Burns*") and Chan et al., U.S. Patent No. 6,748,538 B1, (hereinafter "*Chan*"). Claims 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Moulton* in view of *Chan*. Applicant respectfully traverses these rejections.

**Rejection of Claims 9-16**

Claims 9 & 14 are reproduced below:

9. In a distributed file system that stores encrypted files across multiple computers, a method comprising:
- modifying one or more of the encrypted files;
  - computing a hash value of each modified encrypted file;
  - collecting the hash values into a group;
  - computing a hash value of the group; and

1           digitally signing the hash value of the group of hash values.

2  
3           14. One or more computer readable media comprising  
4 computer-executable instructions that, when executed, direct a  
5 computing device to:

6           modify individual files stored in a serverless distributed file  
7 system;

8           compute a hash value of each modified file;

9           collect the hash values into a group; and

10          digitally signing the group of hash values.

11  
12          The Office argues that *Moulton* teaches the “computing,” “collecting,” and  
13 “computing” processes set forth in claim 9. The Office asserts these processes are  
14 disclosed in column 11, lines 1-10 and Fig. 7, element 310A of Fig. 7, and element  
15 404 of Fig. 5, respectfully. (Office Action; page 5). Applicant disagrees.

16          The excerpt from column 11 and Fig. 7 describes and illustrates,  
17 respectively, pieces 306 of a computer file (File A) and corresponding hash values  
18 310 both before and after editing a particular piece of the File A. *Moulton*  
19 explains that an edit of the File A may produce a change in the file pieces. An  
20 example of this is represented in Fig. 7 as changed piece A2-b of file pieces 306A.  
21 When this occurs, the hash values that correspond to the changed file pieces must  
22 be updated. Therefore, *Moulton* discloses a process for producing an updated  
23 record 404A that includes the modified hash value of File A and an update of the  
24 particular hash piece that was modified as well (shown as hash A2-b).

1        Indeed, *Moulton* teaches accounting for modifications that may occur to a  
2        single file, and updating hash pieces of that file after a modification occurs.  
3        However, there is nothing in the *Moulton* patent that teaches or suggests  
4        “computing a hash value of each modified encrypted file; collecting the hash  
5        values into a group; [and] computing a hash value of the group.” At most,  
6        *Moulton* describes a system and process capable of creating a directory of hashed  
7        files, such as the File A described above, and accounting for changes in those  
8        hashed files. But the concept of creating a single hash value for a group of hash  
9        values of encrypted files is not taught or even remotely suggested.

10       The disclosures of *Burns* and *Chan* fail to make up for the deficiencies  
11       discussed above in relation to *Moulton*. Therefore, Applicant respectfully submits  
12       the rejection under § 103(a) is flawed. The Office is respectfully requested to  
13       reconsider and withdraw the rejection. Nonetheless, Applicant discusses in the  
14       following the additional deficiencies of the obviousness rejection of claims 9-16.

15       The secondary patent *Chan* discloses a platform (e.g., computer,  
16       communication equipment, set-top box) having memory to store multiple software  
17       components and a manifest that contains a hash digest of each software  
18       component. A processor verifies integrity of the software components by re-  
19       computing the digests of the components and comparing them with the digests in  
20       the manifest. However, *Chan* does not teach modifying a hash value of each  
21       modified encrypted file, collecting the hash values into a group, and digitally  
22       signing the group of hash values as recited in claim 9. *Burns* is similarly deficient.

23       For the reasons give above, claim 9 is allowable over the combination of  
24       *Moulton*, *Burns* and *Chan*.

Turning to claim 14, for the reasons given above for claims 1 and 9, *Moulton*, *Burns* and *Chan* do not teach or suggest the features in claim 14.

Claims 10-13 are allowable by virtue of their dependency on claim 9, and Claims 15-16 are allowable by virtue of their dependency on claim 14.

Applicant respectfully requests that the § 103 rejection of claims 9-16 be withdrawn.

Rejection of Claims 17-18

Claim 17 is reproduced below:

17. A data structure stored on a computer-readable medium comprising:

representations of modifications made to multiple files stored in a distributed file system; and

a digital signature covering at least part of the representations to indicate that the modifications were made by a user with the signature.

A detailed discussion of *Moulton* is provided earlier in this Response. For brevity, that discussion will not be repeated. The Office asserts *Chan* teaches the application of "a digital signature covering at least part of the representations to indicate that the modifications were made by a user with the signature," as set forth in claim 17. In particular, the current Office Action refers to column 4, lines 4-10, of the relied upon patent. The indicted excerpt from *Chan* discloses that a manifest may be input into a one-way hash function to reproduce a resulting



1 digest. That digest is signed to produce a digital signature of the manifest, which  
2 can be used to verify the integrity of the manifest itself.

3 The limitation of the claim is more robust than the relied upon teaching of  
4 *Chan*. According to claim 17, not only are the "representations" covered by the  
5 "digital signature," but the signing process identifies "that the modifications were  
6 made by the user with the signature." *Chan* does not teach this aspect of the  
7 claim. Instead, the signature of the manifest only verifies "the integrity of the  
8 manifest itself." (*Chan*, col. 4, line 9).

9 For the reasons given above, claim 17 is allowable over *Mouton* in view of  
10 *Chan*.

11 Claim 18 is allowable by virtue of its dependency on claim 18.

12 Applicant respectfully requests that the § 103 rejection of claims 17-18 be  
13 withdrawn.

14 **Conclusion**

15 Claims 1-4 and 9-18 are in condition for allowance. Applicant respectfully  
16 requests reconsideration and prompt allowance of the subject application. If any  
17 issue remains unresolved that would prevent allowance of this case, **the Examiner**  
18 **is requested to urgently contact the undersigned attorney to resolve the issue.**  
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3 future replies, to charge payment or credit any overpayment to Deposit Account  
4 No. 12-0769 for any additional fees required under 37 CFR §1.16 or under §1.17;  
5 particularly, extension of time fees.  
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9 Respectfully Submitted,

10 Date: 12-02-2005

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